CLAIMS:

1. A position determining system for determining a position of a rotor of a rotating motor (M), said system comprising

sensing means (HS1, HS2) coupled to the rotor for generating in response to a rotation of the rotor a quadrature signal (QS) comprising a sine component (VH1) and a cosine component (VH2), and

calculating means (CU) for calculating

(i) a sum (A^2) of a squared value of the sine component ($A^2\sin^2 x$) and a squared value of the cosine component ($A^2\cos^2 x$),

(ii) an amplitude correction factor (A) as the squared root of the sum (A^2), and

(iii) an amplitude corrected sine component (sin(x)) as the sine component (Asin(x)) divided by the amplitude correction factor (A) and an amplitude corrected cosine component (cos(x)) as the cosine component (Acos(x)) divided by the amplitude correction factor (A).

2. A position determining method for determining a position of a rotor of a rotating motor (M), said method comprising

generating (HS1, HS2) in response to a rotation of the rotor a quadrature signal (QS) comprising a sine component (VH1) and a cosine component (VH2), and

calculating (CU)

(i) a sum (A^2) of a squared value of the sine component ($A^2\sin^2 x$) and a squared value of the cosine component ($A^2\cos^2 x$),

(ii) an amplitude correction factor (A) as the squared root of the sum (A^2), and

(iii) an amplitude corrected sine component (sin(x)) as the sine component (Asin(x)) divided by the amplitude correction factor (A) and an amplitude corrected cosine component (cos(x)) as the cosine component (Acos(x)) divided by the amplitude correction factor (A).

3. A position determining method as claimed in claim 2, wherein the calculating (CU) further comprises determining the position of the rotor by calculating a sum (16) of an

inverse sine value (IS) of the amplitude corrected sine component (sin(x)) and an inverse cosine value (IC) of the amplitude corrected cosine component (cos(x)).

4. A position determining method as claimed in claim 3, wherein the calculating (CU) further comprises

weighting (10, 14) the inverse sine value (IS) with a weighting factor (WF1) for favoring the inverse sine value (IS) around its zero crossings to obtain a weighted sine value (WS), and

weighting (10, 14) the inverse cosine value (IC) with a weighting factor (WF2) for favoring the inverse cosine value (IS) around its zero crossings, to obtain a weighted cosine value (WC),

wherein the calculating of the sum (16) is performed on the weighted sine value (WS) and the weighted cosine value (WC).

5. An optical or magnetic drive comprising

a pick-up unit (OPU) for reading and/or writing information from/to an optical or magnetic medium,

a rotating motor (M) with rotor,

a gearbox (AX, DM) for converting a rotating movement of the rotor into a linear movement of optical pick-up unit (OPU), and

a position determining system for determining a position of the rotor, said system comprising

sensing means (HS1, HS2) coupled to the rotor for generating in response to a rotation of the rotor a quadrature signal (QS) comprising a sine component (VH1) and a cosine component (VH2), and

calculating means (CU) for calculating

(i) a sum (A^2) of a squared value of the sine component ($A^2\sin^2x$) and a squared value of the cosine component ($A^2\cos^2x$),

(ii) an amplitude correction factor (A) as the squared root of the sum (A^2), and

(iii) an amplitude corrected sine component (sin(x)) as the sine component (Asin(x)) divided by the amplitude correction factor (A) and an amplitude corrected cosine component (cos(x)) as the cosine component (Acos(x)) divided by the amplitude correction factor (A).